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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/583,906

06/22/2006

Masashi Takahashi

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EXAMINER

QIAN, YUN

ART UNIT

PAPER NUMBER

4162

MAIL DATE

DELIVERY MODE

10/06/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,906	<b>Applicant(s)</b> TAKAHASHI, MASASHI	
	<b>Examiner</b> YUN QIAN	<b>Art Unit</b> 4162	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/11/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "...decreases to 50<sup>0</sup>C..." in line 5. There is insufficient antecedent basis for this limitation in the claim because there is no heating involved in the claim 3. Appropriate correction is required.

Regarding claim 15, the phrases of "...from 6 to 9 mass% of an aqueous polyvinyl alcohol...." renders the claim indefinite. It is suggested to change to "from 6 to 9 mass% of PVA in the feedstock liquid...." as according to the specification. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-11, and 18-22 are rejected under 35 U.S.C.103 (a) as being unpatentable over Hideji et al. (JP 05-279043).

Regarding claims 3-4, Hideji '043 teaches a method for manufacture of ammonium biuramate particles comprising steps of (a) adding aqueous polyvinyl alcohol (PVA) to a uranyl nitrate solution, (b) charging tetrahydrofurfuryl alcohol (THFA), (c) adjusting the concentration by adding pure water, and adjusting viscosity by controlling the cooling temperature. For example, if the desired viscosity of a uranyl-nitrate solution is 70-100 cP, it is good to make cooling temperature into 18-20<sup>0</sup>C. The resulting undiluted uranium solution contains 0.5-1.05 mol/L of uranium, 2 g/L-50 g/L of PVA, which encompass the claimed ranges ([0009]-[0013]).

Although, the order of addition of reagents by Kenji is slightly different from the instant claim 3, it is not considered to provide any unexpected effect from the teaching of Kenji, especially the reagents and reaction temperatures are same as the instantly claimed. The changing of the order of addition sequence is within the ordinary ability of one skill in the art for optimizing the workable conditions. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claims 5 and 18, although Hideji does not specifically teach the concentration of THFA, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, therefore, the invention as a whole would

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have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claims 6 and 19-20, although Hideji '043 fails to mention agitation and degases during mixing reagents, it is considered as common practices and it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claim 7, the uranium concentration is 120 to 250 gU/L (0.5 mol-U/L-1.05 mol-U/L) as recited claim ([0011]).

Regarding claims 8 and 21-22, Hideji '043 teaches adding aqueous PVA to the uranyl nitrate before charging THFA ([0011]-[0012]). However Kenji fails to disclose the temperature during addition of THFA. It has been held as obviousness for discovering the optimum or workable temperature ranges, including the claimed range, involves only routine skill in the art.

Regarding claim 9, as discussed above, Kenji discloses a method for manufacturing the uranyl nitrate solution, which contains an aqueous PVA and THFA. Although Kenji fails to mention using dried PVA, It would have been obvious to one of ordinary skill in the art at the time invention was made to use dried PVA, so the amount of water needed for each batch is same. It is simplify the manufacture and produce a high quality of product.

Regarding claims 10-11, it is well known in the art to remove moisture by heating wet PVA in a vacuum oven and then store the dried PVA in a desiccant.

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Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hideji et al (JP 05-279043) as applied to claim 3 above, further in view of Larson et al (5,514,306) and Krishnamurthy et al (4,778,665).

Larson '306 discloses a method for making uranyl nitrate using excess of  $\text{HNO}_3$  (greater than 8 equivalents) and performing the reaction at boiling conditions to obtain complete conversion in the shortest period (col. 5, lines 7-14).

It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges (such as temperature and ratio of nitric acid to uranium) involves only routine skill in the art, therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Regarding claim 14, neither Hideji nor Larson specifically teaches chemical treatment for the by-product  $\text{NO}_x$ . Krishnamurthy et al '665 teaches a method for reduction of the nitrogen oxides with ammonia in the presence of a zeolite catalyst (Abstract). It would have been obvious to one of ordinary skill in the art at the time invention was made to use abatement method of Krishnamurthy with the process of Hideji for making uranyl solution, because both teach known methods and would have a reasonable expectation of success. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroji (JP 06-066756).

Hiroji '756 discloses a method for preparing paste for moisture sensitive resistor of dew sensor by dissolving PVA in water, and adding THFA for viscosity adjustment if necessary. The amount of the PVA in the aqueous PVA solution is in the range of 9 to 11 weight%. THFA (2 weight %) is added if necessary (Abstract, [0011], and [0015]).

Although Hiroji fails to disclose the reaction temperature for making aqueous PVA solution, it would have been obvious to one of ordinary skill in the art at the time invention was made to apply heat for dissolving PVA into water, as it is conventionally known that the use of heat aids in the dissolution of a material in water. The discovering the optimum or workable temperature ranges, including the claimed range, involves only routine skill in the art. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUN QIAN whose telephone number is (571)270-5834. The examiner can normally be reached on Monday-Thursday, 10:00am -4:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

YQ

October 1, 2008

/Melvin C. Mayes/  
Supervisory Patent Examiner, Art Unit 1793